

<b>Notice of Allowability</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/540,107	LE BRAS ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	ATIBA O. FITZPATRICK	2624	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 05/05/2010.
2. ☒ The allowed claim(s) is/are 1-25.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☒ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
  - \* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
  - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

**Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).**
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |                                                                                                            |                                                                                                              |
|------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 5. <input type="checkbox"/> Notice of Informal Patent Application                                            |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date <u>20100517</u> . |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),<br>Paper No./Mail Date _____    | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment                                          |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance                         |
|                                                                                                            | 9. <input type="checkbox"/> Other _____.                                                                     |

/A. O. F./  
Examiner, Art Unit 2624



## **EXAMINER'S AMENDMENT**

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 05/05/2010 has been entered.

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Milena Sukovic on 5/17/2010.

The application has been amended as follows (Note that underlined text is added and strike-through text is removed):

Claim 1. Method for radiographic imaging, comprising:

(a) introducing, into calculation means, digitized radiological data from signals delivered by means of detection of X-rays and corresponding to pixels of an image of an anatomical part comprising an osseous body having a three-dimensional shape and

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scanned, in an incidence, with a beam of X-rays having an energy spectrum distributed about at least two energies, the digitized radiological data comprising, for each pixel, coordinates of the pixel in the image and absorptiometry values designed to calculate a bone mineral density of the osseous body, in units of a surface area; and

(b) determining a value of a composite index using a processor of a radiographic image display device based on the digitized radiological data, and based on a three-dimensional generic model of said osseous body produced prior to ~~the introducing of~~ generating the digitized radiological data from the scanned signals;

wherein the composite index includes at least one of: an angle of bone geometry of an osseous part, a length of bone geometry of an osseous part, a surface of bone geometry of an osseous part, a volume of bone geometry of an osseous part, a bone mineral density of an osseous part, a mass of an osseous part, a water composition of an anatomical part comprising the osseous body, a fat composition of an anatomical part comprising the osseous body, a bone composition of an anatomical part comprising the osseous body, a section modulus of an osseous part, or moments of inertia of an osseous part.

Claim 17. Method according to claim 1, in which the composite index is a parameter chosen from among a combination of

. a specific parameter of the bone geometry, chosen from among the angle, length, surface and volume of the osseous part,

with at least one of the following parameters:

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- . a physical parameter chosen from the bone mineral density and mass of the osseous part,
- . a mechanical parameter chosen from the section modulus and moments of inertia of the osseous part, and
- . a chemical parameter chosen from the water composition, fat composition and bone composition of the anatomical part comprising said osseous body.

Claim 18. Method according to claim 1, in which the composite index is a combination of at least two parameters, of which at least one of

- one is chosen from among specific parameters of the bone geometry and the physical parameters: ~~an~~ the angle, length, surface, volume, bone mineral density and mass of ~~an~~ the osseous part, and
- the other is chosen from among the chemical and physical parameters: the water composition, fat composition, bone composition of ~~an~~ the anatomical part comprising the osseous body, and the section modulus and moments of inertia of ~~an~~ the osseous part.

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Claim 19. Device for radiographic imaging, comprising:

- a calculation means designed to calculate digitized radiological data from signals delivered by means of detection of X-rays and corresponding to pixels of an image of an anatomical part comprising an osseous body having a three-dimensional shape and scanned, in an incidence, with a beam of X-rays having an energy spectrum distributed about at least two energies, these comprising, for each pixel, coordinates of the pixel in the image and absorptiometry values designed to calculate a bone mineral density of the osseous body, in units of a surface area unit, and

- a storage means for storing at least one three-dimensional generic model of said osseous body, the at least one three-dimensional generic model produced prior to ~~the delivery of the signals to the calculation means generating the~~ digitized radiological data from the scanned signals,

characterized in that the calculation means are also designed to determine a value of a composite index based on the digitized radiological data, and based on at least one three-dimensional generic model of said osseous body, stored in the storage means;

wherein the composite index includes at least one of: an angle of bone geometry of an osseous part, a length of bone geometry of an osseous part, a surface of bone geometry of an osseous part, a volume of bone geometry of an osseous part, a bone mineral density of an osseous part, a mass of an osseous part, a water composition of an anatomical part comprising the osseous body, a fat composition of an anatomical

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part comprising the osseous body, a bone composition of an anatomical part comprising the osseous body, a section modulus of an osseous part, or moments of inertia of an osseous part.

Claim 24. Computer program product of manufacture that includes a non-transitory computer readable medium ~~having~~ storing a sequence of instructions which, when executed by a processor of a radiographic image display device, causes the processor of the radiographic image display device to execute a process for digital processing of radiographic images, the process comprising:

calculating radiological data, from signals delivered by an X-ray detection means and corresponding to pixels of an image of an anatomical part comprising an osseous body having a three-dimensional shape and scanned, in an incidence, with a beam of X-rays having an energy spectrum distributed about at least two energies, these data comprising, for each pixel, coordinates of the pixel in the image and absorptiometry values designed to calculate a bone mineral density of the osseous body, in units of a surface area unit; and

determining a value of a composite index based on the digitized radiological data, and based on a three-dimensional generic model of said osseous body stored in a storage means, the three-dimensional generic model of said osseous body produced prior to ~~the calculating of the radiological data~~ generating the digitized radiological data from the scanned signals;

wherein the composite index includes at least one of: an angle of bone geometry of an osseous part, a length of bone geometry of an osseous part, a surface of bone geometry of an osseous part, a volume of bone geometry of an osseous part, a bone mineral density of an osseous part, a mass of an osseous part, a water composition of an anatomical part comprising the osseous body, a fat composition of an anatomical part comprising the osseous body, a bone composition of an anatomical part comprising the osseous body, a section modulus of an osseous part, or moments of inertia of an osseous part.

Claim 25. Computer program product of manufacture that includes a non-transitory computer readable medium ~~having~~ storing a sequence of instructions which, when executed by a processor of a radiographic image display device, causes the processor of the radiographic image display device to execute the process of claim 1.

The following is an examiner's statement of reasons for allowance: Limitations pertaining to "determining a value of a composite index using a processor of a radiographic image display device based on the digitized radiological data, and based on a three-dimensional generic model of said osseous body produced prior to generating the digitized radiological data from the scanned signals; wherein the composite index includes at least one of: an angle of bone geometry of an osseous part, a length of bone geometry of an osseous part, a surface of bone geometry of an osseous part, a volume of bone geometry of an osseous part, a bone



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mineral density of an osseous part, a mass of an osseous part, a water composition of an anatomical part comprising the osseous body, a fat composition of an anatomical part comprising the osseous body, a bone composition of an anatomical part comprising the osseous body, a section modulus of an osseous part, or moments of inertia of an osseous part”, in conjunction with other limitations present in the independent claim(s), distinguish over the prior art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled “Comments on Statement of Reasons for Allowance.”

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ATIBA O. FITZPATRICK whose telephone number is (571)270-5255. The examiner can normally be reached on Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Samir A. Ahmed can be reached on (571)272-7413. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/A. O. F./  
Examiner, Art Unit 2624

/Samir A. Ahmed/  
Supervisory Patent Examiner, Art Unit 2624